

**ABSTRACT****METHOD AND SYSTEM FOR MODULATING AND DETECTING HIGH DATARATE  
SYMBOL COMMUNICATIONS**

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A method and system for modulating and detecting high datarate symbol communications provides superior performance in channels having a fixed spectral efficiency. A quadrature amplitude modulation (QAM) constellation and an optimized mapping  
10 are employed to encode/detect a communications signal and error correction is provided using high speed forward error correction techniques. A log likelihood detection scheme and/or a novel phase detector may be employed to further enhance performance.